



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/662,293	09/16/2003	Michel Doyon	10442-30US	9796
20988	7590	12/18/2009		
OGILVY RENAULT LLP 1, Place Ville Marie SUITE 2500 MONTREAL, QC H3B 1R1 CANADA			EXAMINER VERDI, KIMBLEANN C	
			ART UNIT 2194	PAPER NUMBER
			MAIL DATE 12/18/2009	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/662,293	Applicant(s) DOYON ET AL.	
	Examiner KimbleAnn Verdi	Art Unit 2194	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1 – 14 are pending in the application.

Response to Arguments

2. Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cunniff et al. (hereinafter Cunniff) (U.S. Patent 5,842,015, previously cited by Examiner on PTO-892 mailed 4/27/2009) in view of Sankaranarayan et al. (hereinafter Sankaranarayan) (U.S. Patent 6,799,208 B1).**

5. **As to claim 1**, Cunniff teaches in a computer system, a method for providing improved real time command execution in a non real time operating system, comprising:
executing (*i.e., requesting an operation be performed*) at least one application
(*i.e. Application Program 12, Figure 2, requesting an operation be performed via*

the limited hardware resource running in a multitasking environment, col. 7, lines 10-16);

having at least one application (***i.e. Application Program 12***) determine a sequence to be followed for a set of commands (***i.e. command information represents operation to be performed, sequence determined by placement in shared memory buffer, col. 7, lines 13-18***)

providing from said at least one application said sequence of commands (***step 45, Figure 3, col. 7, lines 13-16***) to a privileged mode (***i.e. stored in virtual memory, col. 6, lines 33-35***) of said computer system (***i.e. shared memory buffer 36 is located in Hardware Resource Manager which operates at the privileged level since it controls operations of the hardware in a multitasking operating system, col. 6, lines 1-3, 20-2, and 47-48***) to be executed in real time (***step 48, Figure 3, col. 17, lines 13-27***);

storing said sequence of commands in a command queue (***i.e. shared memory buffer 36, step 46, Figure 3***) to be accessible from a privileged mode level of said computing system (***step 47, Figure 3, resource daemon 38 retrieves the command and data information, col. 7, lines 19-22***); and

executing one at a time each of said commands from said stored sequence of commands (***step 48, Figure 3, resource daemon 38 interprets and processes command information in order received by the shared memory buffer, col. 7, lines 22-26***).

6. Cunniff does not explicitly disclose an application executes at a user mode level and the hardware resource manager executes at the privileged mode of said computer system.

7. However Sankaranarayan teaches an application (*i.e. Application 32(1), Figure 2*) executes (*i.e. requests sets of one or more resources, col. 8, lines 27-29*) at a user mode level (*col. 7, lines 50-51*) and the hardware resource manager (*i.e. Resource Manager 102, Figure 2*) executes at the privileged mode (*i.e. kernel level, col. 7, lines 45-46*) of said computer system (*col. 7, lines 43-46*).

8. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have modified hardware resource manager of Cunniff with the teachings of resource manager from Sankaranarayan because this feature would have provided a mechanism to arbitrate access to the resources (local or remote) provided by the resource providers (*col. 8, lines 26-27 of Sankaranarayan*).

9. **As to claim 2**, Cunniff teaches wherein a plurality of sequences of asynchronous commands is provided (*i.e. data and commands received from one or more application programs, col. 7, lines 13-15*), each sequence being related to a corresponding application thread (*i.e. Application Program provided command and data information, col. 7, lines 13-15*), further wherein said storing of a sequence of commands is performed in a corresponding queue (*i.e. command and data*

information is stored in shared memory buffer, col. 7, lines 16-18 from the execution of said corresponding application thread queue (***i.e. execution of Application program 12 requesting operation to be performed, step 45, Figure 3, col. 7, lines 13-15***).

10. **Claims 3 – 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cunniff et al. (hereinafter Cunniff) (U.S. Patent 5,842,015) in view of Sankaranarayan et al. (hereinafter Sankaranarayan) (U.S. Patent 6,799,208 B1), as applied to claim 1 above, and further in view of Dingwall et al. (hereinafter Dingwall, previously cited) (U.S. Patent No. 5,903,752).**

11. **As to claim 3**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein a synchronous command is added to said sequence of commands, said at least one application sleeping until said synchronous command is executed.

12. However Dingwall teaches wherein a synchronous (***i.e. real-time***) command is added to said sequence of commands, said at least one application sleeping (***i.e. application task is asleep (dormant/locked) until interrupted, 818, Fig. 8***) until said synchronous command is executed (***i.e. RT Scheduler 30, Fig. 2, releases scheduling lock which allows real-time tasks to pre-empt the current (asynchronous) process, col. 3, lines 59-61***).

13. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to have further modified the invention of Cunniff as modified by Sankaranarayan to incorporate the features of Dingwall. One of ordinary skill in the art would have been further motivated to make the combination because this allows real-time programming with support for the presentation of natural data types, without allowing other operations to disrupt the delivery and playback of the audio and video data (*col. 1, lines 66-67 and col. 2, lines 1-3 of Dingwall*).

14. **As to claim 4**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein a synchronous command is added to said sequence of asynchronous commands, said corresponding application thread sleeping until said synchronous command is executed.

15. **However** Dingwall teaches wherein a synchronous command is added to said sequence of asynchronous commands, said corresponding application thread sleeping (*i.e. application task is asleep (dormant/locked) until interrupted, 818, Fig. 8*) until said synchronous command is executed (*i.e. RT Scheduler 30, Fig. 2, releases scheduling lock which allows real-time tasks to pre-empt the current (asynchronous) process, col. 3, lines 59-61*).

16. The motivation for further modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

17. **As to claim 5**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein said non real time operating system is MICROSOFT WINDOWS™ and said storing said sequence of commands is performed through execution of a driver routine from a DLL file.

18. However Dingwall teaches wherein said non real time operating system is MICROSOFT WINDOWS™ (*i.e. environment of WINDOWS™, col. 3, lines 33-34*) and said storing said sequence of commands is performed through execution of a driver routine from a DLL file (*Virtual Device Driver (VxD) is dynamic link library (DLL), col. 3, lines 33-36*). The motivation for further modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

19. **As to claim 6**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein said providing said sequence of commands involves said commands being pushed one at a time into said sequence through system call.

20. However Dingwall teaches wherein said providing sequence of commands involves said commands being pushed one at a time into said sequence through system call (*i.e. interrupt occurs which causes the processor to switch to VxD interrupt mode and execute RT interrupt handler 32, Fig. 2, col. 4, lines 51-23, RT interrupt handler 32, Fig. 2, wake up associated real-time task*). The motivation for further

modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

21. **As to claim 7**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein at least one of said stored commands is a branch command to control the order of execution of said stored commands.

22. However Dingwall teaches wherein at least one of said stored commands is a branch command to control the order of execution of said stored commands (*i.e. RT scheduler 30, Fig. 2, schedules task preemptively by priority and allows interrupt handlers 32, Fig. 2, to make real-time tasks ready for execution without preemption, col. 3, lines 54-62*). The motivation for further modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

23. **As to claim 8**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein said executing said commands from said stored sequence of commands is done at a different privileged mode level system.

24. However Dingwall teaches wherein said executing said commands from said stored sequence of commands is done at a different privileged mode level system (*i.e. Virtual Device Driver (VxD), 28, Fig. 2, run at most privileged level col. 3, lines 36-*

37). The motivation for further modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

25. **As to claim 9**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein said different privileged mode level is that of Interrupt Service Routine, whereby delay between the execution of successive commands is minimized.

26. However Dingwall teaches wherein said different privileged mode level is that of Interrupt Service Routine (*i.e. Virtual Device Driver (VxD), 28, Fig. 2, which is interrupt driven, runs at most privileged level col. 3, lines 36-38*), whereby delay between the execution of successive commands is minimized (*i.e. improves real-time response col. 2, line 49-50*). The motivation for further modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

27. **As to claim 10**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein said non real-time operating system is MICROSOFT WINDOWS™.

28. However Dingwall teaches wherein said non real-time operating system is MICROSOFT WINDOWS™ (*i.e. environment of WINDOWS™, col. 3, lines 33-34*). The motivation for further modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

29. **As to claim 11**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein said sequence of commands process a same data set.

30. However Dingwall teaches wherein said sequence of commands process a same data set (*i.e. task needs to process data in buffer stored by audio/video device, col. 4, lines 59-60*). The motivation for further modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

31. **As to claim 12**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein said same data set is a video camera image being captured and processed in real-time.

32. However Dingwall teaches wherein said same data set is a video camera image being captured and processed in real-time (*i.e. task needs to process data in buffer stored by audio/video device, col. 4, lines 59-60*)(*i.e. example task used to perform capture or playback of audio/video, col. 4, lines 5-6*). The motivation for further modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

33. **As to claim 13**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein said providing said sequence of commands involves said commands being pushed one at a time into said sequence through a system call.

34. However Dingwall teaches wherein said providing said sequence of commands involves said commands being pushed one at a time into said sequence through a system call (*i.e. interrupt occurs which causes the processor to switch to VxD interrupt mode and execute RT interrupt handler 32, Fig. 2, col. 4, lines 51-23, RT interrupt handler 32, Fig. 2, wake up associated real-time task*). The motivation for further modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

35. **As to claim 14**, Cunniff as modified by Sankaranarayan does not explicitly disclose wherein said storing said sequence of commands is performed through execution of a driver routine from a system file.

36. However Dingwall teaches wherein said storing said sequence of commands is performed through execution of a driver routine (*i.e. Virtual Device Driver*) from a system file (*i.e. Virtual Device Driver (VxD) is dynamic link library (DLL), col. 3, lines 33-36*). The motivation for further modifying Cunniff as modified by Sankaranarayan with the teachings of Dingwall is the same as provided in the rejection of claim 3 above.

Conclusion

37. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

38. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

39. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KimbleAnn Verdi whose telephone number is (571)270-1654. The examiner can normally be reached on Monday-Friday 7:30am-5:00pm EST..

Art Unit: 2194

40. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hyung Sough can be reached on (571)272-6799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

41. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hyung S. Sough/

Supervisory Patent Examiner, Art Unit 2194

12/16/09

KV

December 5, 2009